of Norfolk," &c. there are fifty letters, while the same is represented arithmographically by thirty-one figures only.

Examples:

"I am going to Marseilles."

$^{1}5829^{1}$ $^{3}646.$

"The Society of Arts of Scotland has a royal charter."

9865 81109 $^{2}9352$ 6056^{3} $^{4}9127$ $^{4}3589.$

"Twenty-two gentlemen were proposed as members of the Society of Arts on Wednesday evening, 22d February." (Eighty-seven letters.)

$\overline{22}$ $^{7}5767$ $^{4}8464^{6}_{6}$ $^{7}7163$ $^{2}9865$ $^{8}1109$ 7554 11873.

5262 $\overline{22}$ 5509. (Forty-seven figures.)

"The Duke of Norfolk, one of the new members of the Society of Arts." (Fifty letters.)

$^{1}4931$ $^{2}4322$ $\overline{1}$ $^{8}7399$ $^{8}7163$ $^{2}9865$ $^{8}1109.$ (Thirty-one figures.)

PROSSER'S PROCESS OF MAKING BRICKS, TILES, AND TESSERÆ, FROM A NEW MATERIAL.

By J. M. Blashfield, Esq.

The Roman tessellated pavements, described by Vitruvius (specimens of which may be seen in the British Museum), are composed of coloured marbles of various kinds, and of different degrees of compactness and durability. By Mr. Prosser's invention the want of uniformity in the shape and size of the tesseræ employed by the Romans is entirely obviated.

Three years ago Mr. Prosser discovered that, by subjecting a mixture of pulverised felspar and fine clay to a strong pressure between steel dies, the powder was compressed into about one-fourth of its bulk, and became a compact body much harder and considerably less porous than the common porcelain.

The first application of this discovery was to the manufacture of buttons, which are much more durable and considerably less expensive than those in ordinary use.

One of the principal uses to which this invention is applied is that of constructing tesseræ for pavements, and which was suggested by Mr. Blashfield, who, in conjunction with Messrs. Wyatt, Parker, and Co., has already carried out the invention to a considerable extent in the construction of tesseræ of various shapes, sizes, and colours, which being made in steel dies of exactly simi-

lar form, can be put together in the most complicated designs with extreme accuracy.

The machine for making the tesseræ is very simple. A vertical screw, worked by a horizontal handle twenty-four inches in length, is furnished with a steel die at the bottom, of the same shape as the intended tesseræ. Immediately below this die is a cavity formed in the bed of the machine $1\frac{1}{8}$ inch in depth, and corresponding in plan with the die which works into it.

The cavity being filled with the powder in as dry a state as possible, pressure is applied by turning the handle of the screw rapidly round, and the bulk of powder is thus reduced in thickness from $1\frac{1}{8}$ to $\frac{3}{8}$ of an inch, the surface being, moreover, rendered very smooth and polished. Each tessera when formed is raised from the bottom of the cavity by a movable bed or die worked by a vertical rod attached to a treadle, and when removed from the press the tesseræ are placed in an oven to undergo the process of baking. The tesseræ thus formed will bear a pressure of forty tons, and have been put to the most severe test in respect to the effect of frost, having been first immersed in boiling water, and immediately afterwards exposed to a temperature of 32°. They may likewise be exposed to a considerable degree of heat, so that flues may be constructed below the tessellated pavements, formed of this material, without causing any injury to them.

Blue or green colours are given to the tesseræ by means of metallic oxides in the process of baking; but other colours are mixed up with the powder before it is submitted to pressure.

Very compact and durable bricks are likewise made by a similar process, but are necessarily subjected to a much greater pressure, which is effected by the use of the hydraulic press.

Slabs of elaborate design and richly inlaid with brilliantly coloured designs, suitable for chimney-pieces, &c., are also made by this process, each slab being submitted to a pressure of 250 tons before baking.

BRAITHWAITE'S PROCESS OF PRODUCING IMITATIONS OF CARVING IN WOOD.

THIS invention was first produced in France, but has not been carried out to any great extent in that country.

In the carving of wood, as usually performed, two persons are employed, the one to cut out the intended subject in the rough, and the other to finish it. When a particular design is required to be executed by Mr. Braithwaite's process, a mould is made of cast-iron of the intended pattern, which is then heated to "cherry-red;" the heated mould being placed ready to receive the wood, viz. oak,